NHDES Wetlands Bureau Annual Report to U.S. EPA Region 1 For Calendar Year 2012

New Hampshire Department of Environmental Services
Water Division/Wetlands Bureau
29 Hazen Drive / PO Box 95
Concord, NH 03302-0095

April 8, 2013

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

The New Hampshire Department of Environmental Services (DES) Wetlands Bureau operates under the authority of the New Hampshire Revised Statutes Annotated (RSA) 482-A, the wetlands dredge and fill statute. The Wetlands Bureau is responsible for regulating impacts to freshwater and coastal wetlands, surface waters and their banks, dunes, the tidal buffer zone and areas adjacent to state-designated prime wetlands. The regulation of impacts is accomplished primarily through the permitting process.

The mission statement of the Wetlands Bureau is "*to protect, maintain and enhance the environmental quality in New Hampshire through the powers set forth in RSA 482-A to regulate impacts to those areas 'wherever the tide ebbs and flows' or 'freshwater flows or stands*."

EPA GRANT UPDATES

In 2011, the Wetlands Bureau was awarded two new grants from EPA, Grant #1: Advancing New Hampshire's Wetlands Program - Developing Water Quality Standards (CD# 96155701-0) and Grant #2: Creation of an Integrated and Comprehensive Aquatic Resource Habitat Restoration and Protection Program (CD # - 96155401). On November 9, 2011 the Governor and Executive Council authorized DES to accept and expend the grants.

The main objectives identified for the grants were:

1. To evaluate the wetlands permit technical review process in order to identify opportunities to standardize procedures and better utilize available scientific data to support decisions.

2. To evaluate activities regulated under the Wetlands Bureau including the review and revision of all permit applications.

3. To compare alternative methods to assess wetland conditions so as to better evaluate proposed wetland impacts, appropriate protections, and the overall effectiveness of the system of regulations in NH at protecting wetland functions and achieving a net increase in wetlands.

4. To establish a single, integrated process for complaint intake, prioritization, and investigation with the Wetlands Bureau and the Watershed Management Bureau.

Grant 1: Advancing New Hampshire's Wetlands Program - Developing Water Quality Standards

The primary goal of Grant #1 to compare alternative wetland assessment methods to determine their potential use as a tool to measure project success involved an inter-agency team. This team evaluated existing data currently available for each method relative to its currency, resolution, accuracy, accessibility, and cost. The accuracy assessments included scores recorded by field surveyors during the actual field assessments of the methods. The team of staff from the New Hampshire Natural Heritage Bureau, DES, and the UNH Cooperative Extension evaluated 27 peatland systems and five wetland mitigation sites in New Hampshire using four wetland

assessment methods: the New Hampshire Method (NHM), USA Rapid Assessment Method (US-RAM), Natural Heritage Bureau Level 2 Ecological Integrity Assessment (EIA), and Floristic Quality Assessment (FQA). The four wetland assessment methods all require or benefit from pre-field office-based preparations using existing data sources which was carried out by the team. The secondary goal of field surveys is to make comparisons between different wetland assessment methods at mature restoration or constructed mitigation sites to provide regulatory agencies with a potential tool to measure success of these projects. A draft of the field results, observer comments, and protocol comparisons can be found in Appendix A.

For Grant #1, the Water Quality Standards Advisory Subcommittee was formed to guide research preparation and review of a plan to develop water quality standards for wetlands. The subcommittee met in April, May, and October of 2012. A webpage was created and meeting-related documents and other links to other resources can be found at: http://des.nh.gov/organization/divisions/water/wmb/wqs/wetlands-subcommitee.htm

Topics discussed included:

- Wetlands to be considered in assessments. Discussion of locating and obtaining improved mapped wetlands data in GIS form. Survey sent out and results are being summarized.
- Water quality standards under the Clean Water Act, designated uses and adopting narrative and numeric criteria. Discussed designated uses "aquatic life integrity" and "wildlife" definitions that the previous subcommittee drafted.
- Current approach to water quality assessments - use of core and non-core parameters and how decisions are made regarding fully-supporting a designated use and non-supporting a designated use. Different wetlands may need different core parameters or same parameters and different threshold levels.
- Different types of wetlands in NH (Cowardin wetlands classification) - palustrine forested wetlands are the largest portion at 49 percent. These may be most challenging to address because they tend to be the drier wetlands. Palustrine emergent may be more in line with what has been completed for assessment of other surface waters.
- Various wetland assessment methods and activities. After 10 years some states are still collecting biological data to assess (and make attainment decisions on) a very small percentage of their wetlands.
    - Most states are focusing on macroinvertebrates, amphibians, and birds that are dependent on the aquatic environment. Aquatic Life tends to include resident species as they are smaller (more sensitive due to their size) and probably better representative of community condition.
    - National Wetland Condition Assessment (NWCA) (Level 3) and USA-RAM wetland sampling conducted in 2011. Raw data has not yet been received from EPA. An EPA report on the NWCA is expected in late 2013.
    - VHB Restoration Model, State RAMs and Indices of Biological Integrity.

Presentations provided included:

- Developing an Index of Biological Integrity for wadeable river and streams which provided an idea of what is involved with developing biological integrity indices.
- Development of Wetland Aquatic Life Use Criteria. Maine made attainment decisions based on provisional model, but still using narrative criteria for now. Maine wants to analyze the algae data from the samples that were collected.

Next steps include the development of a draft outline for a plan using what has been learned from Maine and other states. Upcoming subcommittee date meetings have been scheduled for January 10, April 11, July 11, and October 10, 2013.

Grant 2: Creation of an Integrated and Comprehensive Aquatic Resource Habitat Restoration and Protection Program

For Grant #2, the major objective was to create a coordinated intake and complaint process within the Wetlands Bureau and the Watershed Management Bureau. A LEAN event was conducted in 2012. During this event, current state and future states regarding the compliance process were mapped and analyzed. The results and recommendations were shared with senior management. Several strategic recommendations were approved by the management team to improve processes. The recommendations included the following:

- Improve public education and outreach on the compliance process to external and internal stakeholders.
- Standardize current complaint intake procedures between the Wetlands Bureau and the Watershed Management Bureau.
- Use one standardized compliance database.
- Improve prioritization methodology using science and available GIS-based technology.
- Cross-train and coordinate with Watershed Management Bureau staff to respond to highest-priority complaints.

Because many complaints received by the current intake process is motivated by neighbor disputes, a "complaints" webpage was created. The webpage is an educational tool describing the what types of activities are permitted, what common complaints are *not* addressed, and the procedures for filing the complaint. In 2013, a logic model will be available to the public that will "walk" them through the complaints process. The complaint form was revised to clarify information needed to investigate a potential violation.

Implementation of the above-referenced tasks is continuing. Regarding the recommendation of using a standardized compliance database, a feasibility study was conducted in 2012 to study the effectiveness of using the Watershed Management Bureau's Environmental Monitoring Database (EMD) for compliance purposes. The EMD has many capabilities that the Wetlands Bureau FoxPro database does not have. To that end, staff have been meeting with Watershed Management Bureau program development staff over the past four months to discuss modifications to the EMD database for the Wetlands Bureau to use. The business model is complete and a draft will be presented to the administrators in April 2013. Compliance staff will have a chance to review and comment on the proposed model with the goal of building the model to begin in June 2013.

CONTINUAL PROCESS IMPROVEMENTS

The Wetlands Bureau is continuing to work on process improvements and improving coordination and consistency with other sections within the Land Resources Management Program. The following activities were accomplished during the 2012 calendar year:

Projects Accomplished

- **Administrative Staff:** Administrative support staff and functions were merged across all programs and their work was reorganized into key functional areas: application receipt, customer service, permit generation, mail processing, and office management. Dedicated areas within the office were established for each functional area and staff are being cross-trained and rotated to ensure adequate coverage of all critical functions at all times across all four functional areas.

- **Approved Permits:** Established procedures to make approved permits available to applicants within one business day of the decision by making an electronic copy available via the DES One-Stop web-based data retrieval system.

- **Complaint-Intake Process:** In coordination with the Watershed Management Bureau, evaluated the process by which water and wetland-related complaints come into and are managed by DES. Identified recommendations for improved information for the public and internal staff and increased coordination between the Wetlands Bureau, Watershed Management Bureau and other compliance staff in tracking, evaluating and responding to complaints. Recommendations included: improving the information available via the DES website on filing a complaint, modifying internal procedures for receiving calls and submissions, prioritizing complaints, utilizing available staff to respond quickly as needed, and to better coordinate information sharing and staff support between the Wetlands Bureau and the Watershed Management Bureau.

- **Data Entry Protocols:** Implemented revised data entry protocols to ensure consistent tracking of classifying different types of permit applications, permit status, and actions taken during the permit review. The revised data entry protocols support accurate and more efficient measures reporting of program operations.

- **File Organization & Culling:** With intern support, made substantial progress with regards to file reorganization and culling of materials from old files.

- **Formal Communication Strategy:** Established a communications protocol identifying the strategies to be used to communicate both minor and more significant program and process changes to internal staff and outside constituents.

- **Information/Technology:** Prepared a joint IT plan articulating common goals for improving data management and reporting and moving toward a more unified system to support inter-program communication and coordination.

- **Inspector of the Day Duties:** Instead of continuing with separate Inspectors of the Day at both the Concord and Portsmouth offices, the Portsmouth staff were integrated into the Concord office Inspector of the Day rotation reducing staff time dedicated to this function and bringing staff from different regions together several times each month which assists in communication and awareness of each region's issues.

- **Operations:** Established teams to address streamlining and integration of operations in three critical functional areas: compliance, permitting, and technical assistance.

- **Permit Application Forms:** Revised permit applications to comply with a standardized format, to use the same terminology (to the extent possible in compliance with existing rules and statutory definitions), and to incorporate additional regulatory and statutory requirements (e.g., to provide for consistent notification of Local River Management Advisory Committee, when applicable). Several permit applications were substantially revised working with applicable stakeholders and include:

    - The Minimum Impact Agricultural Wetlands Notification process and form were revised with input from members of the NH Conservation Districts.

    - The Minimum Impact Forestry Wetlands Notification process and form were revised with input from a group of stakeholders including the NH Timberland Owners Association, NH Department of Resources and Economic Development, and NH Fish and Game Department.

    - The Wetlands Expedited Permit and Standard Dredge and Fill application forms were combined into a single form and substantially revised to provide meaningful direction to the novice applicant.

    - Utility Notification: Worked with other state agencies as well as stakeholders to revise the utility notification process.

- **Physical Reorganization:** Physically reorganized staff, equipment, and files within the Concord office to support integrated and coordinated operations particularly for administrative support functions, promote cross-program communications, and re-organize files for easier access. Technical staff were relocated and interspersed across the floor to promote increased cross-program communication and support initial cross-training of staff. Initial cross-training/mentoring partners were identified for a wetlands-shoreline structure permit application review & shoreland program permit application review and a shoreland program permit application review and subsurface system application review.

- **Record Retention Procedures:** Established a records retention policy and schedule in conjunction with the NH State Archivist to reduce the bulk of retained hard-copy files, establish timeframes for recordkeeping, and ensure that retained files can be easily located.

- **Time Sheet Codes:** Adopted a consolidated and consistent set of time sheet codes to better track the use of staff time.

Projects Underway

- **Electronic "Decision Trees" for Evaluating Applicability of Permit Requirements:** Staff are developing simple, easy-to-use electronic flow charts or decision trees to assist potential applicants in determining the need for and the type of permit application.

- **Electronic Files, Policies, and Procedures:** Staff are evaluating the organization of the computer drives and electronic file folders that house all information and documents. Staff are also reviewing, revising, and cataloging Wetlands Bureau policies and procedures for administrative, technical, and procedural issues.

- **Performance Measures:** Staff are establishing a refined set of measures to support real-time evaluation of activity levels and program performance. Measures for permitting activity and review timeframes, environmental impact/benefit analysis, and financial conditions are currently being identified. Changes to permit tracking, data-entry protocols, and computer programs to generate standard reports will be developed to support regular reporting and updates for the defined measures.

Projects Planned (2012-2013)

- **Evaluation of Technical Review Process for Wetlands Permit Applications**: Evaluation of the wetlands permit technical review process to identify opportunities to standardize procedures and better utilize available scientific data to support decisions. (GRANT # 1 Work underway)

- **Evaluation of Wetlands Regulated Activities, Permit Types, and Requirements:** Evaluation of the activities regulated by the Wetlands Bureau, the applicability of technical standards to different types of activities, and the information required by permit applications. (Grant # 1 work underway)

PERMITTING ACTIVITIES

Permits Received

The economy continued to be a challenge for the development community as reflected in the Wetlands Bureau permit application numbers, which decreased as a result of the economic downturn. The number of Standard Dredge and Fill permit applications received by the Wetlands Bureau has steadily decreased over the last 10 years. The most dramatic decline occurred from 2007 to 2008. The number of applications received in 2012 was almost half of what it was 10 years ago. The number of Trails Notices have dropped to one half the number received 10 years ago, Gold Dredge Notifications are still on the rise and Expedited applications are still declining.

Table 1. 10-Year Trend of Wetlands Standard Dredge and Fill Applications Received (2003-2012)

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
941	814	924	931	842	606	546	508	485	501

Figure 1. 10-Year Trend of Wetland Applications and Notifications Received (2003-2012)

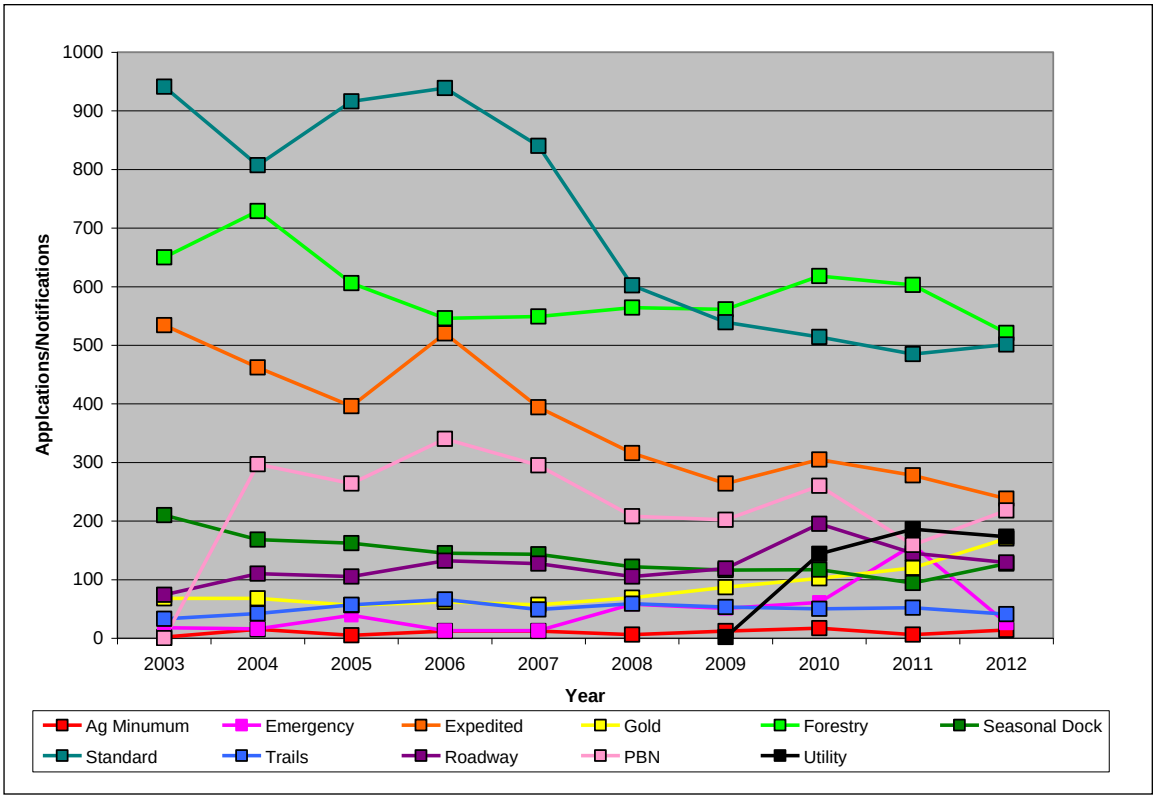
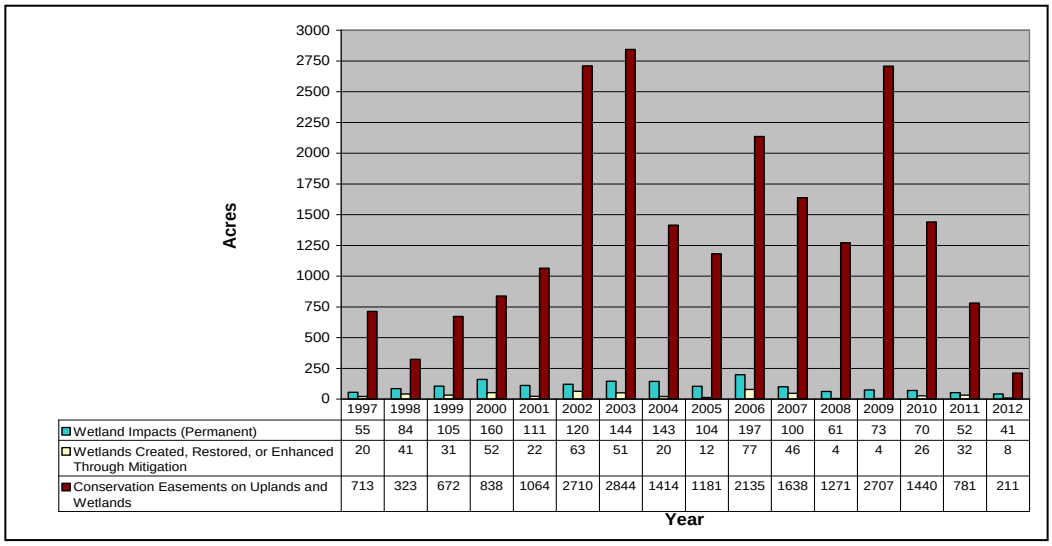


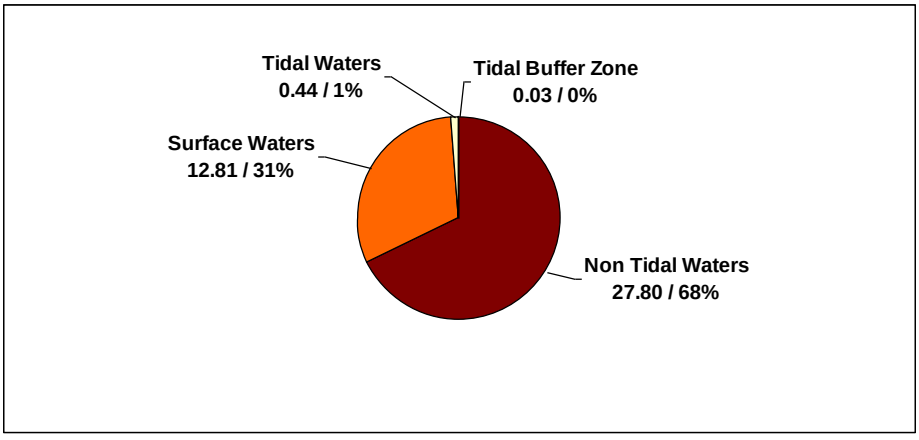
Figure 2. Wetland Impacts, Mitigation, and Restoration (1997-2012)



	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Wetland Impacts (Permanent)	55	84	105	160	111	120	144	143	104	197	100	61	73	70	52	41
Wetlands Created, Restored, or Enhanced Through Mitigation	20	41	31	52	22	63	51	20	12	77	46	4	4	26	32	8
Conservation Easements on Uplands and Wetlands	713	323	672	838	1064	2710	2844	1414	1181	2135	1638	1271	2707	1440	781	211

In 2012 the impacts to wetlands from DES permitting was at approximately 41 acres; one third the amount of wetlands impacted 10 years ago. The standard methods of compensation through on-site restoration and conservation easements has also dropped dramatically. This is a result of the increasing use and success of the In Lieu Fee ARM Fund Mitigation program (See Mitigation Section). As a result of this mitigation option, approximately 2,700 acres were acquired for preservation, 3.5 acres were approved for wetland restoration, 5 acres of wetland area will be enhanced, and 1.5 miles of improved stream passage will be undertaken in two locations. Figure 3 illustrates the general breakdown of type of resources impacted. 27.8 acres (or 68 percent) were impacts to non-tidal waters, 12.81 acres (or 31 percent) were impacts to surface waters, and 0.44 acres (or one percent) were impacts to tidal waters.

Figure 3. Total Impacts By Resource Type For Calendar Year 2012



A Permit Team was also created from a team of Alteration of Terrain, Subsurface, and Wetlands staff. This team developed seven training modules to be used by any staff that may be called upon to assist with permit review process. The Permit Team also developed a matrix that allows staff with varying technical skills to be matched with application types consistent with their skill sets. Once the training modules are complete, all staff will be crossed trained according to the matrix.

COMPLIANCE ACTIVITIES

Complaints Received

In 2012, the Wetlands Bureau received approximately 223 written complaints. 160 complaints alleged violations of RSA 482-A; the NH Wetlands Statute, 49 complaints alleged violations of RSA 483-B; the Shoreland Water Quality Protection Act (SWQPA), six complaints alleged violations of RSA 485-A; Alteration of Terrain, and eight complaints alleged water quality violations.

Of the 160 complaints alleging violations of RSA 482-A; the NH Wetlands Statute, 137 (61 percent) related to the dredge/fill of wetlands, 13 (six percent) related to docking structures, and 10 (four percent) related to forestry/logging in wetlands. Alleged violations of Alteration of Terrain consisted of six complaints (three percent) and alleged violations of water quality consisted of eight complaints (four percent).

Figure 4. Number and Percent of Complaints By Type for Calendar Year 2012

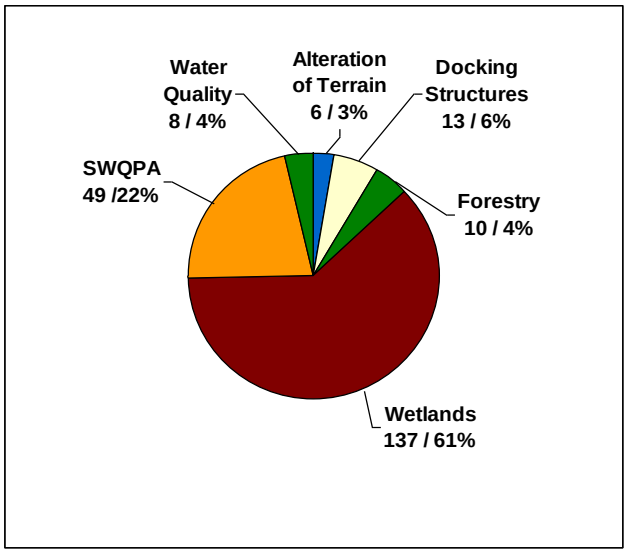
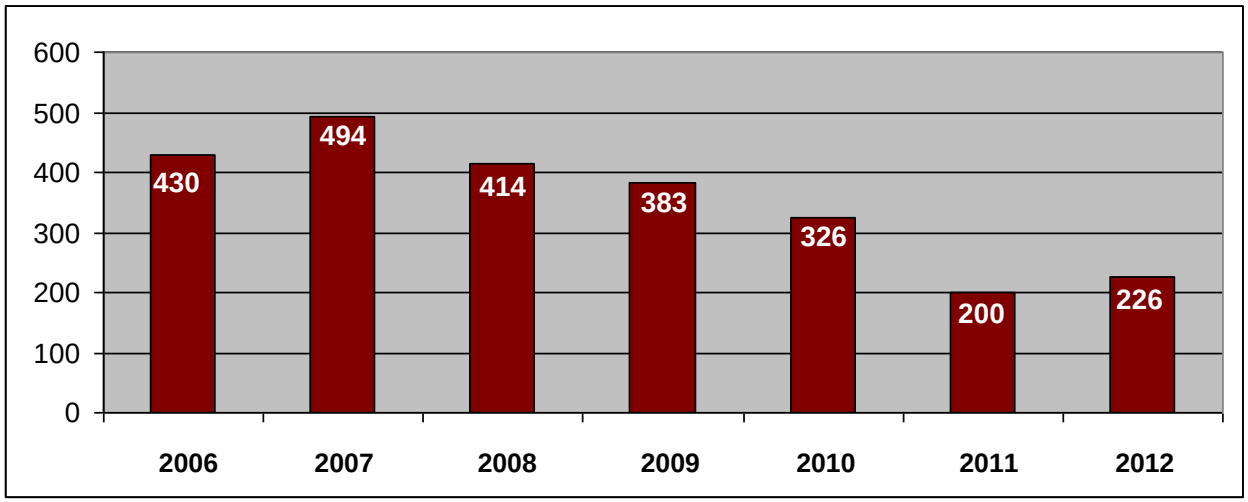


Figure 5. Seven-Year Trend of Number of Complaints Received (2006 - 2012)



Enforcement Actions Taken

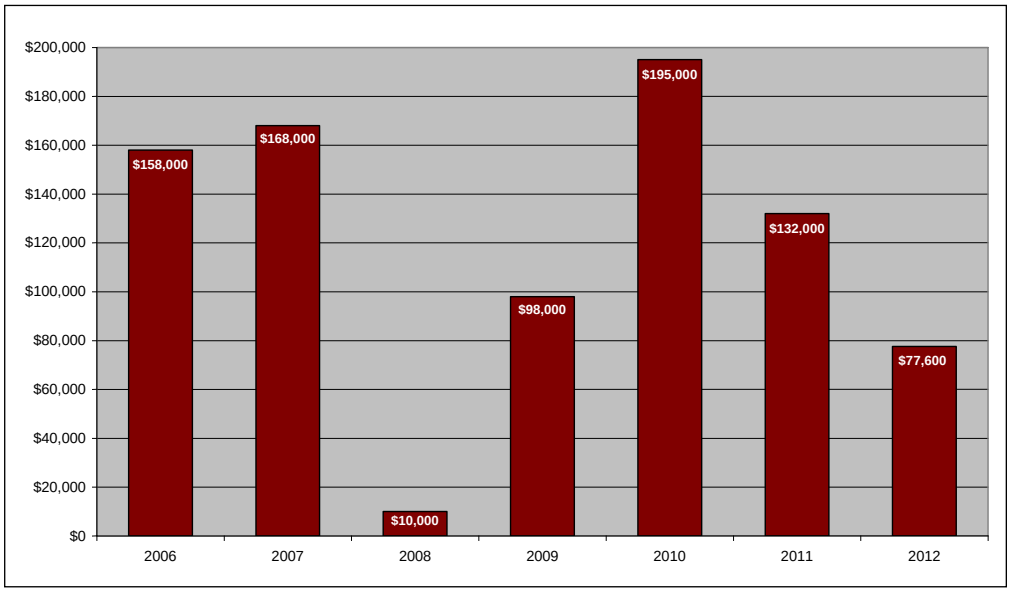
If possible, the Wetlands Bureau attempts to resolve minimal violations informally during or immediately following a site inspection by information actions that included restoration requests and Letters of Deficiency. In cases where the impact is larger or more environmentally damaging, where the violator has a prior enforcement history, or if the violator is unwilling to work cooperatively with the Wetlands Bureau to correct the deficiencies, more formal action(s) may be taken in the form of an Administrative Order, referral to the Department of Justice, and/or imposition of administrative or civil penalties.

The Wetlands Bureau will also seek fines consistent with its statutory authority and the Compliance Assurance Response Policy (CARP). In 2012, DES collected approximately $77,600 in administrative fines and civil penalties. The reduction in money collected can be attributed to receiving fewer complaints than in the past and a reduction in compliance staff to perform inspections of permitted sites.

Table 2. Seven-Year Trend of Wetland Enforcement Action By Type (2006-2012)

Enforcement Action Type	2006	2007	2008	2009	2010	2011	2012
Complaints Received	430	494	414	383	326	200	223
Informal Restoration Requests	72	63	65	50	41	40	20
Notices of Past Violations	15	06	06	19	05	12	07
Letters of Deficiency	160	113	99	92	55	28	34
Administrative Orders	32	09	16	19	14	18	04
Referrals to the Dept of Justice	06	03	07	06	05	03	01

Figure 6. Civil Penalties and Administrative Fines Collected for Violations of RSA 482-A



Compliance Improvements

In 2011 EPA awarded DES a Wetlands Program Development Grant (CD-96155401), titled Creation of an Integrated and Comprehensive Aquatic Resource Habitat Restoration and Protection Program in New Hampshire. The goals of this grant were, among other things, to create a coordinated intake and complaint process within the Wetlands Bureau and the Watershed Management Bureau. A LEAN event was conducted during the summer of 2012. During this LEAN event, current state and future states regarding the compliance process were mapped and analyzed. As a result, several strategic recommendations were made to the management team to improve processes. The recommendations included improvements in educating the public on the compliance process to external and internal stakeholders, standardizing and clarifying current intake procedures, using the more up-to-date Environmental Monitoring Database (EMD) for future complaint intake, using science and available GIS tools to clarify prioritization of complaints, and cross-training and using Watershed Management Staff to respond to the most environmentally significant and urgent complaints.

AQUATIC RESOURCE MITIGATION FUND PROGRAM

Compensation for unavoidable wetland impacts has been a part of the DES Wetlands Bureau since the mid 1980's and now serves as a critical program to address impacts under Sections 401 and 404 of the federal Clean Water Act which result in the discharge of dredged or filled materials within “waters of the U.S.” Under the Corps General Permit for New Hampshire, compensatory mitigation for proposed wetland dredge and fill impacts has been required for projects having more than 10,000 square feet of wetland impact, and for minor projects when deemed appropriate by the Corps, to comply with federal standards. During the 2006 legislative session, the General Court enacted Senate Bill 140, known as Aquatic Resource Mitigation Fund (ARM Fund). These provisions are codified at RSA 482-A:28 through RSA 482-A:33. The law creating the ARM Fund program became effective on August 18, 2006 and DES adopted implementing rules effective on June 20, 2007.

As a result, the ARM Fund has been become one of several compensatory mitigation options available to permittees for impacts to wetlands and other aquatic resources. This mitigation option is available for use after avoidance and minimization of impacts to these aquatic resources has been achieved. Although compensatory mitigation is often a requirement in permits, use of the ARM Fund can only occur after the applicant has reviewed other available forms of mitigation in the vicinity and local community. The ARM Fund seeks “no net loss” of aquatic resource acreage and functions using a watershed approach. DES has the authority to collect the funds and they are pooled together according to the Hydrologic Unit Code 8 (HUC-8) watershed level.

In FY 2012, an agreement was established with the federal agencies noting guidelines, responsibilities and standards for the use, operation and maintenance of the ARM Fund in a way that brings the existing mitigation program into compliance with the Federal "Mitigation Rule." The federal In-lieu Fee (ILF) Instrument establishes DES as the qualified ILF program sponsor and administrator for the ARM Fund program. DES works with the Corps to ensure that requirements for aquatic resource compensation are being met and that it is recognized that ultimately DES is solely responsible for providing compensatory mitigation for projects which have paid into the ARM Fund.

During the 2012 legislative session, the General Court enacted Senate Bill 1380 for a change to RSA 482-A:28 through RSA 482-A:33. The final language provides a change from 16 HUC-8 areas where payments can be provided to nine service areas. The language notes a service area may be a HUC-8 watershed, as developed by the United States Geological Survey, or a modification of a HUC-8 watershed by the department as approved by the United States Army Corps of Engineers. The following report is based on the nine new service areas.

FY 2012 Permits Issued with ARM Fund as Compensatory Mitigation and ARM Fund Receipts

The ARM Fund program has been very successful for permit applicants and has resulted in many significant wetland preservation and restoration projects across the state. Table 3 provides a list of the projects permitted from July 1, 2011 to June 30, 2012 where the wetlands permit holders selected payment to the ARM Fund to satisfy compensatory mitigation requirements. In this time period, nine permits with 15.99 acres in cumulative impacts were issued. The ARM Fund received mitigation fees of $2,428,512. In additon, four projects were issued permit approvals that included an ARM Fund payment as the form of mitigation with estimated total wetland impacts of 3.32 acres and expected ARM Fund compensatory mitigation fees of $225,010 to be paid in FY 2013.

Table 3. Wetland Permits Issued in FY 2012 Where Applicant Used ARM Fund for Compensatory Mitigation

Town DES File Number	Service Area	Wetland Impacts (Acres)	ARM Fund Revenues	Payment Deposit Date
Bow-Concord 2011-0922	Merrimack	0.98	$99,673.00	August 16, 2011
Groton 2010-0745	Pemi-Winni	1.65	$120,000.00	October 5, 2011
Hooksett 2010-1370	Merrimack	0.02	$2,885.00	October 25, 2011
Keene 2011-1637	Lower CT River	0.62	$108,478.00	January 18, 2012
Lisbon 2010-2887	Middle CT River	0.25	$29,950.00	May 16, 2012
Manchester 2011-0817	Merrimack	0.37	$61,683.00	January 11, 2012
Nashua 2010-0616	Merrimack	11.63	$1,925,155.00	October 17, 2011
Nashua 2011-1261	Merrimack	0.44	$72,243.00	January 13, 2012
Warner 2011-0831	Contoocook	0.03	$8,445.00	December 29, 2011
TOTALS		**15.99**	**$2,428,512.00**	

ARM Fund Disbursements in FY 2012

The ARM Fund program grants funds to projects involving wetland and/or stream restoration, wetland enhancement, and/or preservation of upland buffers associated with high quality aquatic resources. The ARM Fund has been utilized by projects in several watersheds since the program inception. The projects that were provided payment during FY 2012 are noted in Table 4.

Table 4. ARM Fund Disbursements for Completed Projects in FY 2012

Project Name: Exeter River Water Quality Improvements and Buffer Preservation		
Applicant: Town of Brentwood	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** Brentwood
ARM Funds Disbursed: $10,000.00	**Matching Funds:** $50,420.00	
Description: The Brentwood Conservation Commission will preserve 16 acres of frontage on the Exeter River, and 0.3 acres of riparian enhancement to improve water quality and habitat. The project targets and expands on projects identified in the Exeter River Geomorphic Assessment and Watershed-Based Plan: Middle Exeter River (2010). In that plan, these are projects #1-3 which include stormwater retrofits, riverbank stabilization, buffer plantings, and conservation easements totaling approximately 16 acres.		
Project Name: Berry Brook Watershed Restoration through Stream Restoration, Buffer Development, and LID Retrofits		
Applicant: UNH Stormwater Center and City of Dover	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** Dover
ARM Funds Disbursed: $330,863.00	**Matching Funds:** $198,100.00	
Description: This project will significantly restore and reconnect 0.9 miles of 1st order stream Berry Brook to the Cocheco River. The work includes restore/daylight/recreate 1,960 feet of stream channel, remove fish passage barriers, and provide significant treatment of 164 acres of watershed for diadromous fish and other aquatic species. Berry Brook is an urban stream which will be improved through two efforts: 1) Wetland and stream restoration, and buffer development and conservation, and 2) Base flow and water quality improvements.		
Project Name: Strolling Woods Conservation Project		
Applicant: City of Franklin	**Watershed:** Pemigewasset River	**Town:** Franklin
ARM Funds Disbursed: $40,000.00	**Matching Funds:** $420,172.00	
Description: The City of Franklin will restore wetlands and provide water quality improvements to Webster Lake, as well as conserve a 15 acre parcel that will adjoin a 226 acre parcel recently funded from the NRCS Wetland Reserve Program.		
Project Name: Tioga River Wildlife Conservation Area		
Applicant: Town of Belmont	**Watershed:** Winnipesaukee River	**Town:** Belmont
ARM Funds Disbursed: $28,738.00	**Matching Funds:** $4,600.00	
Description: The Town of Belmont will attempt to eradicate the current infestation of Glossy Buckthorn on the Tioga River Wildlife and Conservation Area. The most significant threat of the invasion is to Prime Wetland 18, one of the highest ranking wetlands in Belmont. Wetland enhancement is within 25 acres of wetland habitat with control methods implemented to eliminate and manage invasive species on the site.		

Project Name: Potter Farm Conservation/Wetland Enhancement Project		
Applicant: Town of Northumberland	**Watershed:** Upper Connecticut River	**Town:** Northumberland
ARM Funds Disbursed: $12,313.00	**Matching Funds:** $233,702.00	
Description: A 326 acre property was purchased by The Nature Conservancy for protection and restoration of floodplain forests, maintain agricultural land uses, and protect uplands and rivershore connectivity. The project is an entire ridgeline-to-rivershore swath. This parcel is part of TNC's "Kilkenny Matrix Forest Block", comprising 119,600 acres of unfragmented forest.		
Project Name: Nesenkeag Brook Headwaters Project		
Applicant: Town of Londonderry	**Watershed:** Merrimack River	**Town:** Londonderry
ARM Funds Disbursed: $1,050.00	**Matching Funds:** $5,970.00	
Description: The town of Londonderry will use funds to review the hydrologic conditions for future wetland enhancement opportunities. The restoration of the Nesenkeag Brook Headwaters site attempts to return a degraded ecosystem to its natural potential.		
Project Name: Siemon Family Charitable Trust Conservation Land		
Applicant: NH Fish & Game Department	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** Milton
ARM Funds Disbursed: $29,300.00	**Matching Funds:** $191,800.00	
Description: The NHFG was donated the value of a conservation easement on the 366.1 acres of land with 1.9 miles of riparian corridor along Jones Brook. The funds were used to complete components of the land transaction. The property consists of 44.75 acres of NH Wildlife Action Plan (WAP) Tier 1, Highest Ranked Wildlife Habitat by Ecological Condition in the State; 73.65 acres of WAP Tier 2, Highest Ranked in Biological Region; and 239.23 acres of WAP Supporting Landscape.		
Project Name: Odiorne Point State Park Maritime Cobble Beach and Coastal Salt Pond Marsh Restoration Project		
Applicant: Rockingham County Conservation District	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** Rye
ARM Funds Disbursed: $16,286.00	**Matching Funds:** $6,100.00	
Description: The Rockingham County Conservation District was awarded $43,000 for 3.8 acres of restoration and 6.45 acres of enhancement work at the state park. Located at Odiorne Point State Park in Rye NH, the NH Natural Heritage Bureau defines the aforementioned sites as "exemplary natural communities" of which the coastal salt pond marsh is the only one of its kind in the state. These significant habitats are home to two endangered, and two state listed threatened plant species.		
Project Name: River Road Marsh Restoration		
Applicant: New Castle Conservation Commission	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** New Castle
ARM Funds Disbursed: $17,441.00	**Matching Funds:** $27,250.00	

Description: The New Castle Conservation Commission in partnership with the Rockingham County Conservation District will provide 0.5 acres of salt marsh restoration. Once restored, this wetland is expected to have high wildlife habitat value, sediment retention/ nutrient removal, educational and aesthetic potential.		
Project Name: Evans Mountain		
Applicant: : Town of Strafford and Bear-Paw Regional Greenways	**Watershed:** Salmon Falls – Piscataqua Rivers	**Town:** Strafford
ARM Funds Disbursed: $350,000.00	**Matching Funds:** $580,105.00	
Description: The primary goal of the project is to permanently protect the natural resources on the 1,015-acre Evans Mountain property in Strafford. This parcel is part of a 6,000-acre unfragmented forest that includes headwater streams of Bow Lake and the Nippo Brook/Isinglass River in the Salmon Falls - Piscataqua River watershed and the Big River in the Merrimack River watershed, as well as 67 acres of wetlands (almost evenly split between the two watersheds). This project includes a wetland restoration and aquatic resource improvement component which proposes to restore 18 sites covering 7,000 square feet impacted by road building and other activities associated with heavy resource extraction by prior owners.		
Project Name: Colony Project		
Applicant: Monadnock Conservancy	**Watershed:** Lower CT River	**Town:** Chesterfield
ARM Funds Disbursed: $83,467.00	**Matching Funds:** $172,487.00	
Description: The Monadnock Conservancy will acquire a conservation easement on 300.9 acres of land with 32 acres of wetlands, seven acres of source water protection area, approximately 8,000 feet of streams, and eight vernal pools. This parcel is part of a much larger effort of the Conservancy to protect conservation lands in the "California Brook Natural Area" which includes 9,000 acres of undeveloped forestland and wetlands connecting West Hill in Keene with Pisgah State Park.		
Project Name: Coffin Brook Floodplain Restoration		
Applicant: Town of Alton	**Watershed:** Pemigewassett to Winnipesaukee River	**Town:** Alton
ARM Funds Disbursed: $23,000.00	**Matching Funds:** $35,707.00	
Description: The town of Alton will enhance 30 acres of a floodplain wetland system through the installation of a series of floodplain culverts in a specific area of the floodplain to restore hydrologic connectivity of the floodplain and prevent flooding into the road surface by allowing flow during storm events. Installation of selected 45" wide by 29" high elliptical culverts improves passage in the floodplain.		

ARM Fund Projects Awarded Funds in FY 2012

In March 2011, DES announced the availability of ARM funds accrued in the following two service areas: the Androscoggin River and Pemigewasset - Winnipesaukee River areas. These two service areas had accumulated funds over a two-year period and were required by administrative rules to be advertised for release. Pre-proposals were requested to be submitted by April. The full applications were reviewed by the ARM Fund Site Selection Committee (Committee) and representatives from the Army Corps of Engineers and US Environmental Protection Agency. The grant applications were reviewed during several meetings and field inspections. The Committee's recommendations were provided to the Army Corps of Engineers and the Wetland Council for final approval. A project in New Hampton was awarded funds from the Winnipesaukee River watershed account and a project in Wentworth Location/Errol was awarded funds in the Androscoggin River watershed. Table 5 provides details of the past fiscal year's awards and a brief description of the gain in resources from each project.

Table 5. ARM FUND Awards in FY 2012

Service Area	Project Name/ Applicant	Award Amount	Functions And Values Gained	Mitigation Provided
Androscoggin	Greenough Ponds/Trust for Public Lands	$89,000.00	Wildlife habitat and sediment/nutrient retention.	938 acres of land preservation in Wentworth Location including the entire shorefront of Greenough Pond and Little Greenough Pond.
Pemigewasset Winnipesaukee	Snake River, Baird Property/New Hampton	$100,000.00	Wildlife habitat, sediment/nutrient retention and floodflow alteration.	8.1 acres of preservation that includes approx. 1,560 feet of frontage along the Snake River which flows from Lake Winona into Lake Waukewan.

Status of the Administrative Assessment Account

One component of an ARM Fund payment is an administrative assessment established by RSA 482-A:30,III and RSA 482-A:30-a,II.Such account assessments collected shall be used to support up to two full-time positions to administer the fund. During FY 2012, the assessment was 10 percent of a total payment. The revenue accrued during FY 2012 that supports one full-time position was $207,600.

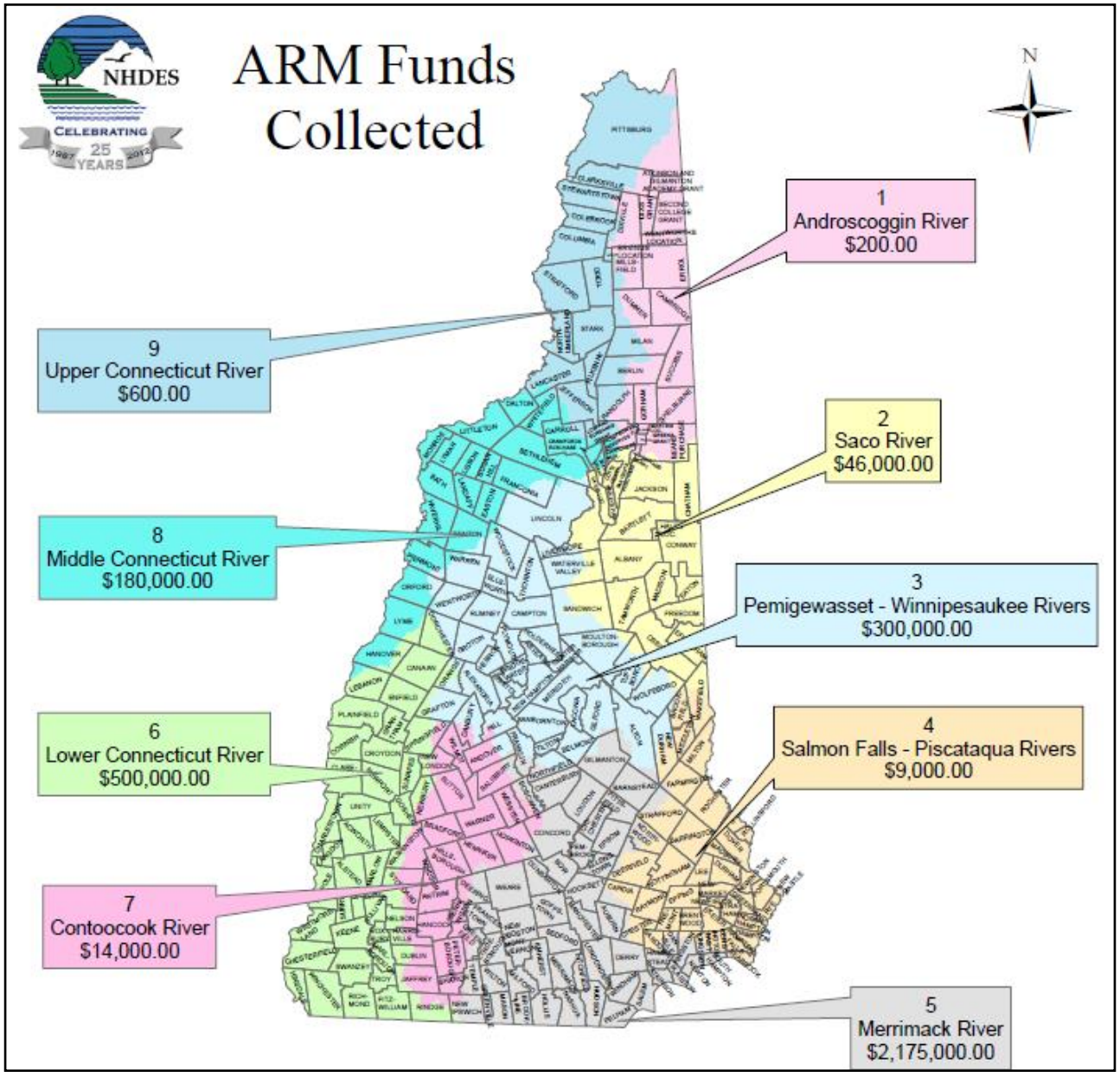
Overall Status of the ARM Fund Account (as of June 30, 2012)

The FY 2012 ended with all of the ARM Fund service areas having accumulated funds. Table 6 describes revenues, expenses, encumbered funds and a balance by each service area. The amounts advertised in the 2012 grant round are included in Figure 7. The results of the 2012 grant round will be reported in the state fiscal year 2013 report.

Table 6. Status Of Arm Fund Accounts According To Service Areas

Service Areas	Beginning Balance (7/1/2011)	Revenues	Expenses	Encumbered	Ending Balance (6/30/2012)
Androscoggin River	$89,351.64	$0.00	$0.00	$0.00	$89,351.64
Contoocook River	$7,414.03	$8,444.95	$0.00	$0.00	$15,858.98
Lower Connecticut River	$599,209.71	$108,478.05	$83,467.00	$99,533.00	$524,687.76
Merrimack River	$99,456.14	$2,161,639.21	$2,050.26	$600.58	$2,258,444.51
Middle Connecticut River	$165,998.47	$29,950.12	$0.00	$0.00	$195,948.59
Pemigewassett to Winnipesaukee Rivers	$462,946.29	$120,000.00	$91,738.00	$74,762.00	$416,446.29
Saco River	$46,223.29	$0.00	$0.00	$0.00	$46,223.29
Salmon Falls to Piscataqua Rivers	$1,595,433.90	$0.00	$752,889.90	$832,921.10	$9,622.90
Upper Connecticut River	$13,036.43	$0.00	$12,313.00	$0.00	$723.43
Total All Service Areas	**$3,079,069.90**	**$2,428,512.33**	**$942,458.16**	**$1,007,816.68**	**$3,557,307.39**

Figure 7. ARM Funds Advertised In 2012 According To Service Areas



LEGISLATION & RULEMAKING

Legislation

The 2012 legislative year was a very busy year regarding potential legislation that could effect, impact, or permanently change New Hampshire's natural environment. DES staff attended many hearings in order to evaluate the depth of the proposed legislation and what impact it would have on New Hampshire's wetlands. Table 7 illustrates a summary of legislation passed in 2012.

Table 7: Summary of New Legislation for 2012

Bill	Chapter	Section(s)	Effective Date
HB 1233	55	I	January 1, 2013
House Bill 1233 creates a statute of limitations for persons who acquire a property more than five years after an activity creating a violation of RSA 482-A providing such person allows the restoration of impacted areas, unless the person knew of the violation at the time the person acquired the property.			
HB 1380	74	I	July 22, 2012
HB 1380 allows for any individual, public, or private entity to establish a wetland mitigation bank as long as federal laws are followed and clarifies the watershed designations associated with in-lieu fee funding.			
HB 1636	145	I	August 6, 2012
HB 1636 is relative to extensions for wetlands permits concerning long-term maintenance and safety of shoreland structures. Permits of this type will now be valid for 10 years as long as the original permit conditions are adhered to. Example projects include retaining walls, docks, access ways/stairs, and breakwaters.			
SB 19	235	I	August 17, 2012
SB 19, relative to the designation of prime wetlands, removed the 100 foot prime wetland buffer for towns that adopted prime wetlands prior to 2007, the year the buffer was defined at 100 feet. Towns with prime wetland buffers designated 2007 or later were allowed to keep their prime wetland buffer. SB 19 also contains new criteria in order for the wetland to be designated as "prime."			
SB 247-F-N-L	273	I	June 19, 2012
SB 247 authorizes municipal employees, such as public works employees, whom, upon completion of a DES-authorized certification training course, may replace, repair, and modify culverts up to four feet in diameter without obtaining a wetlands permit. The municipality must submit quarterly reports to DES listing projects completed.			

Rulemaking

During 2012, Wetlands Bureau supervisors continued to meet with the DES Legal Unit to review drafts of what will be a total rewrite and reorganization of the Bureau's rules. A target date of January 2015 for adoption of these rules has been set. In the interim the current rules will be readopted with such changes as are necessary to bring them into agreement with recent changes to RSA 482-A.

OUTREACH AND EDUCATION

Presentations and Workshops

Due to department budget cuts, the full-time Wetlands education and outreach position has been vacant for two years, and the duties of the full-time Shoreland education and outreach position has shifted to compliance. However, during 2012 several Wetlands and Shoreland personnel presented at 40 workshops around the state reaching approximately 1,700 attendees. Topics included changes to RSA 482-A, the NH Wetlands Law, changes to RSA 483-B, the Shoreland Water Quality Protection Act, changes to wetlands and shoreland permit applications/procedures, erosion and sediment control best management practices, routine roadway and culvert replacement procedures, timber harvesting using BMPs in wetlands, vegetation maintenance within the protected shoreland, landscaping at the water's edge, among others. Table 8 on page 29 lists the date, event or organization, location, and approximate number of attendees in which staff presented to over the course of the 2012 calendar year.

Communications Team

In addition to outreach and education endeavors, a Communications Team was created from Wetlands, Shoreland, and Subsurface staff. This team developed a weekly review panel as well as a new standard operating procedure to receive and act on any suggested changes to permit application forms, the Wetlands, Shoreland, and Subsurface webpages, and suggestions to improve policy and communications.

The Communications Team also developed the following products:

- Frequently Asked Questions About New Hampshire Wetlands webpage.
- "Contact Us" webpage.
- Weekly "Items of Interest" distributed by e-mail to all staff including press releases, enforcement actions, outreach and education endeavors, and other significant events.

Staff Training

The Communications Team also organized training modules that provide staff training on topics including customer service, time management, communication skills, and difficult conversations among others. These training modules will be received by four 10-member cross-section teams during March and April of 2013. These teams will then "reteach" these modules to the rest of the staff. The goal of the trainings to build team building and to help identify broad communication issues that need to improved.

Table 8: Wetlands and Shoreland Workshops During Calendar Year 2012

Date	Event or Organization	Location	Approx Number of Attendees
01/05/2012	DES Pease Office	Portsmouth	15
01/11/2012	Cocheco River Local Advisory Committee	Rochester	40
01/11/2012	Lakes Region Code Enforcement Officers	Meredith	15
01/19/2012	Tin Mountain Conservation Center	Conway	25
01/25/2012	UNH Cooperative Extension Pesticide Applicators Meeting	Concord	30
01/25/2012	UNH Cooperative Extension	Manchester	30
01/26/2012	UNH Cooperative Extension	Goffstown	30
02/18/2012	Cobbets Pond Watershed Association	Windham	40+ Televised
03/03/2012	Gilford Islands Association	Gilford	40
03/19/2012	Land Trust Coalition	Concord	65
03/20/2012	Granite State Designers and Installers	Manchester	60
04/12/2012	DES Subsurface Continuing Education	Concord	60
05/02/2012	DES Drinking Water/Groundwater Workshop	Concord	50
05/07/2012	Logging and the Law	Springfield	50
05/09/2012	Logging and the Law	N. Haverhill	50
05/09/2012	Rockingham Planning Commission	Seabrook	40
05/15/2012	DES Town Meeting	Concord	150
05/24/2012	Logging and the Law	Colebrook	30
06/02/2012	DES VLAP Annual Training Workshop	Concord	150
06/06/2012	Southwest Regional Planning Commission	Hancock	30
06/06/2012	Strafford Regional Planning Commission	Rochester	40
06/15/2012	Town Clerk's Annual Meeting	Conway	100
06/22/2012	NH Lakes Annual Congress	Meredith	50
06/23/2012	Acton-Wakefield Watershed Alliance	Wakefield	50+ Televised
06/28/2012	Spofford Lake Association	Chesterfield	45
09/24/2012	Lakes Region Planning Commission	Meredith	50
08/07/2012	Moultonborough Landscapers	Moultonborough	25
08/19/2012	Halfmoon Lake Association	Barnstead	40
08/21/2012	Erosion Control Workshop	Gilford	80
09/06/2012	Crystal Lake Association	Enfield	30
11/05/2012	NH Association of Conservation Commissions	Concord	45
11/08/2012	NRCS District Office	Walpole	06
11/27/2012	Logging and the Law	Unity	40
11/29/2012	Logging and the Law	Barnstead	35
12/06/2012	NRCS District Office	Orford	15
12/07/2012	NH Association of Land Surveyors	Concord	40
12/18/2012	NRCS District Office	Conway	20

Appendix A. Draft Summary: Comparison of Alternative Wetland Assessment Methods

In 2012, a project team of staff from the New Hampshire Natural Heritage Bureau, DES, and the UNH Cooperative Extension evaluated 27 peatland systems (kettle hole bog, poor level fen/bog and medium level fen) and five created wetland mitigation sites in New Hampshire using four wetland assessment methods: the NH Method (NHM), USA Rapid Assessment Method (US-RAM) (slightly modified), Natural Heritage Bureau Level 2.5 Ecological Integrity Assessment (EIA), and Floristic Quality Assessment (FQA). As described in the Quality Assurance Project Plan (QAPP):

> The principal goal of this project is a comparison of alternative wetland assessment methods. Expected outcomes include (1) improved understanding of alternative wetland assessment methodologies and their potential applicability to various Wetlands Program and Watershed Management activities, improved protection for New Hampshire's highest quality wetland resources, and increased knowledge to support developing and applying water quality standards for wetlands within the existing NH regulatory framework to further reduce impacts and protect and restore New Hampshire's wetlands.

Given the diversity of goals possible for wetlands assessments, no one method can be considered to be superior to others. The choice of method for a particular situation will depend on the overall goal, the resources available, and the expected uses of the results. The combination of field application and literature research conducted for this study allows a detailed comparison of the strengths and weaknesses of the four rapid assessment methods used. These results can be used to assist users in selecting an appropriate method given their particular goals and constraints.

When reviewing the results, it should be noted that (1) the sample size was limited, (2) the vegetation in peatland systems is limited in number of species and relatively easy to identify, (3) the EIA and FQA were applied by those most familiar with the methods at all but the replicate sites and (4) most observers had limited experience with the USA RAM and low-moderate experience with NH Method.

Field Results

- FQA required the least time to collect the data in the field, averaging around 1.5 hours, the other three methods averaged around 2 hours.
- NHM and USA RAM had the highest inter-observer variability at all three non-mitigation replicate sites, while FQA metrics (Mean C or weighted Mean C) had the lowest inter-observer variability. For the single mitigation replicate site there was a difference in scoring in all of the methods applied.
- There was agreement between EIA and FQA scores.

Observer Questionnaire Results

- Observers found the clarity of instructions for all methods to be generally clear. On a scale of 1 (clear) to 5 (ambiguous) the median observer response ranged from 1 for FQA, 1.5 for EIA, and 2 for both NHM and USA RAM.

- Observers found making decisions on how to score metrics for all methods to be generally easy. On a scale of 1 (easy) to 5 (difficult) the median observer response ranged from 1 for FQA, 1.5 for EIA, and 2 for both NHM and USA RAM.

- Observers felt that similarly qualified observers would score the wetland similarly for all of the methods. On a scale of 1 (very similar) to 5 (very different) the median observer response ranged from1 for FQA, 1.5 for EIA, and 2 for both NHM and USA RAM.

Protocol Comparison

- The NHM estimates individual ecological functions and societal values while the USA RAM, EIA, and FQA estimates a wetland's overall ecological integrity.

- The NHM is typically applied to the entire wetland complex whereas USA RAM and EIA generate a separate score for each wetland system within the complex (or assessment area and buffer).

- The NHM, USA RAM, and EIA all evaluate stressors known to negatively impact function and/or condition; the FQA does not.

- EIA results in an overall wetland condition score based on scores for five Major Ecological Attributes (Size, Landscape Context, Vegetation, Hydrology, and Soils). Multiple wetlands can thus readily be ranked and compared on their overall condition.

- EIA does not measure specific wetland ecological services and functions, potentially making it difficult to use to justify wetland protection in terms of monetary value to the community. However, all ecological functions can be inferred to be in good shape for highly ranked wetlands, while one or more function can be inferred to be impaired at low-ranked sites.

- Applying the wetland classification improves EIA's sensitivity in estimating condition by refining ecological context and increasing the surveyor's ability to evaluate EIA metrics and the scope and severity of stressors to the system.

- The USA RAM is comprised of 12 individual condition or stressor metric scores that roll into an overall score for the assessment area. The overall score permits comparisons between wetlands. However, its condition and metric scores do not include the cultural functions measured by NHM, and the overall score lacks some of the insight that EIA gains by integrating into the method a system and natural community classification (see next section).

- NHM, USA RAM, and EIA all address water quality to some extent as Level 2 methods by considering evidence of disturbance in the assessment area and buffer. Level 2 rapid assessment methods can be used as initial screening tools for evaluating potential impacts to water quality but may not be a substitute for more detailed site-specific studies.

- Each of this study's four methods evaluates a system's importance to wildlife at Level 2 to some degree.

Current (and Potential Future) Regulatory Applications

- NHM is used by New Hampshire communities for the identification and designation of wetlands for consideration as a "prime wetland" under RSA 482-A and Env-Wt 700, as well as evaluating their significance as a resource in communities (even without the prime wetlands aspect). Since the 2011 revision to the method makes it appropriate to evaluate a single wetland, its use in the permitting process may be one to consider.

- The EIA method is used by NHB to determine if a wetland natural community or system is exemplary and the condition of the natural community. A project that is the subject of a NH wetlands permit application is classified as "major" based on numerous criteria, including if it is in a wetland that has been identified by NHB as an exemplary natural community. Any major or minor project must consider the impact on exemplary natural communities in the project's design.

- FQA has been used in other states to make permit decisions and to develop performance standards and mitigation criteria:

    - The US Army Corps of Engineers in the Chicago District uses FQA to measure mitigation success. To be in compliance, mitigation wetlands are required to have a Mean C ≥ 3.5 or FQI ≥ 20 within five years of establishment.

    - FQA is also used in Illinois to establish regulatory mitigation ratios. For a permitted impact, wetlands with relatively high Mean Cs and FQIs often require greater mitigation ratios; the permit could also be denied if the impact is considered unmitigable. For example, administrative rules to the Illinois Wetland Policy Act of 1989 (20 ILCS 830, 17 Ill. Adm. Code 1090) require a 5.5:1 mitigation replacement ratio for loss of wetlands with a Mean C ≥ 4.0 or a native FQI ≥ 20. In the Chicago region, Wilhelm (1992, 1993) proposes wetlands with high floristic quality (FQI ≥ 35) are unmitigable because of the unlikelihood of restoration achieving the original floristic quality; sites that are likely mitigable have lower floristic quality with FQI in the teens and twenties (Herman et al. 2001).

    - US ACE (St. Paul District) uses FQA to help determine compensatory mitigation requirements.

    - Ohio EPA uses FQA to assess natural wetlands and track wetland mitigation projects.

Future Research

- Additional research would clarify FQA floristic quality thresholds among different wetland system types in the Northeast. Other potential FQA research topics include understanding which indices best predict condition given differences in disturbance, wetland size, and sampling approach.

- Applying FQA as one assemblage in the monitoring and assessment of wetlands will contribute to evaluating wetland condition and the calibration of other indices being applied.

- Evaluate the use of the New Hampshire Method in the permitting process – to determine how it would work and for what projects (by impact classification) it would be appropriate.

- Evaluate the USA RAM scores with the metric weighting that EPA will be developing in the near future.

New Hampshire Department of Environmental Services
Water Division
Wetlands Bureau
29 Hazen Drive / PO Box 95
Concord, NH 03302-0095
(603) 271-2147

Collis Adams, Bureau Administrator
Mary Ann Tilton, Assistant Bureau Administrator

Written By: Sandy Crystall, Jen Drociak, Linda Magoon, Carolyn Russell, Lori Sommer, and Mary Ann Tilton
with assistance from Jay Aube, Jocelyn Degler, and Darlene Forst

Layout, Design, and Edited By: Jen Drociak

April 8, 2013